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BANGLADESH LANDSAT-2 PROGRAMME

E7.6-10329

CR-147210

I. INTRODUCTION

Title of Investigation

Investigations using data from Landsat-2.

Investigation Number

G 27950

Principal Investigator

Dr. Anwar Hossain

Name and address of Principal Investigator's Organization

Member, Bangladesh Atomic Energy Commission,
P.O. Box 158, Dacca, Bangladesh.

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Date

April 1976

MAY 18 1976

Type of report and period covered

Three Quaterly Report
July 1975 - March 1976.

DCAF# 1010932

Name and address of National Sponsoring Agency

Bangladesh National ERTS Committee,
Planning Commission, Government of,
the People's Republic of Bangladesh,
Dacca, Bangladesh.

II. TECHNIQUES:

The limited facilities available in Bangladesh have been utilized as the necessary equipment could not yet be procured. The Landsat-2 imageries received consisted of MSS bands 4567 mainly in black and white 70 mm and 9½ inch negatives and in some cases, diapositives & 18" prints. These products were properly stored and a retrieval system of using the imageries were maintained. After screening and scene selection, the imageries were reproduced using conventional photographic equipment like contact printers, enlargers etc. The products used for analysis consist mainly of black and white prints of 9½ inch size. Small test areas were blown up to a maximum enlargement of 10 times and used for ground-truth studies.

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(E76-10329) INVESTIGATIONS USING DATA FROM
LANDSAT-2 Quarterly Report, Jul. 1975 -
Mar. 1976 (Atomic Energy Commission) 6 p
HC \$3.50 CSCI 05B

"Made available under NASA sponsorship
in the interest of early and wide dis-
semination of Earth Resources
Program information and
for any use made thereon"

The interpretation was done mainly by visual observations in all bands. In some cases stereoscope, light tables etc. were used.

Ground-truth observations were made on some specific test sites and field photography using Yashica MATT & A and Rolliciflex cameras were carried out coinciding the dates of satellite passes over Bangladesh.

III. ACCOMPLISHMENTS:

Landsat imageries of Bangladesh have given indication of new land accretion in the Bay of Bengal. In some test areas, positive indication has been obtained. Maximum limit of land accretion is being studied by constructing models using the estimated sedimentation data and ideal depth variation. The Landsat imageries have also been used for winter crop estimation in the Sylhet-Mymensingh Haor (Depression) test area. Monthly changing pattern of the same depression area is also being studied. In a test site near Dacca, a canal of about 80' wide was identified when photographs were blown up 10 times. Agricultural crops, forest types, tea gardens, rivers, ponds, settlement, hills and other geographical features were identified during field survey.

Studies of flood forecasting, flood damage, salinity, water drainage pattern, fish resources, crop forecasting, ecological phenomena, forest resources, rubber estates assessment etc. using Landsat imageries ^{are} ~~is~~ under progress. These studies are being made using aerial photographs, ground observations, field photographs and other statistical data available in the country.

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IV. SIGNIFICANT RESULTS:

1. ✓ Landsat imageries have given positive indication of new land formation in the Bay of Bengal. Detailed investigation is under progress.
2. Several mosaic maps of the coastal area have been prepared using both Landsat-1 and Landsat-2 imageries. These were used by our Foreign Office/Inland Water Transport Authority (IWTA) for fixing the base line in the Bay of Bengal. A map of the Bay region showing depth of new formations south of Patherghata test site has been prepared.
3. Winter crop estimation of the Sylhet-Mymensingh Districts were made. This estimate shows an agreement of about 93% with 1973 data of the Agriculture Department. *different test sites of*
4. ✓ A preliminary land use map of the Sylhet-Mymensingh area using Landsat imageries in conjunction with aerial photographs and ground survey has been prepared.
5. Landsat imageries have been supplied to the following organizations for studies:-
 - (1) Universities for research in water resources, river morphology and other geographic & geological features studies.
 - (2) Survey of Bangladesh and Directorate of Land Records for updated cartographic mapping of Bangladesh.
 - (3) Geological survey and Petro-Bangla for geological feature studies.

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V. PUBLICATIONS:

The following papers/articles etc. have been published during this period.

1. Utilization of Remote Sensing Technology in Natural Resources Development in Bangladesh.

- Anwar Hossain & M.U. Choudhury.

Presented at the International seminar on remote sensing of environment held at Ann Arbor, Michigan USA in Oct. 1975.

2. Study of land formation in Bangladesh with Landsat-1 imageries

- Anwar Hossain & M.U. Choudhury.

Presented at the International seminar on remote sensing of environment held at Ann Arbor, Michigan USA Oct., 1975.

3. "Reclamation of land from the sea in Bangladesh"

- M.R. Tarafdar.

Presented at a seminar on "Flood control and allied problems in Bangladesh" held in Oct., 1975 Jointly sponsored by B.W.D.B. and the Netherland Technical Assistance Programme.

4. ERTS-B (Landsat-2) 18 day global coverage calendar, 1975.

- M.A.H. Pramanik, April, 1975.

5. ERTS-B (Landsat-2) 18 day global coverage calendar 1976.

December 1975.

- M.A.H. Pramanik.

6. Land formation in the coastal Belt of Bangladesh-its expectation (in Bengali) by M.U. Chaudhury.

Paper presented at the 1st Bangladesh Conference on Mangrove afforestation at Barisal - January, 1976.

7. Land formation in the coastal Belt of Bangladesh-its ecology and development strategy by M.U. Chaudhury.

Paper presented at the 2nd National Geographical Conference at Rajshahi in February 25-29, 1976.

8. Remote Sensing in Geography

- A.M. Choudhury.

Presented at the 2nd annual geography conference held at Rajshahi February 25-29, 1976.

9. Use of ERTS imageries in geography

- M.A.H. Pramanik.

Presented at the 2nd annual geography conference held at Rajshahi February, 25-29, 1976.

10. Study of the Haor area of Sylhet - Mymensingh Districts with ERTS imageries (winter crop estimation).

Presented at the First Annual Bangladesh Science Conference held at Dacca March 28-31, 1976.

11. A model of coastal land accretion

- A. M. Choudhury.

Presented at the First Annual Bangladesh Science Conference held at Dacca March 28-31, 1976.

12. An analysis of the Satellite Pictures of the Cyclones in the Bay of Bengal from 1968-74

- A. M. Choudhury, M.K. Anam and M.A.Jabbar.

Presented at the First Annual Bangladesh Science Conference, Dacca, March 28-31, 1976.

Vi. PROBLEMS:

Due to non-finalization of UNDP assistance and delay in establishing the ERTS Centre, necessary equipment and materials could not be procured and the training of the investigators could not be undertaken. Action has now been taken to speed up the programme.

VII. DATA QUALITY AND DELIVERY:

The quality of the data product is quite good and we have no comment about it. As far as the delivery of the Landsat-2 imageries is concerned, we did not receive all the imageries covering all dates and areas. In some cases we received duplicate products mainly 9½" negative size. It takes about 2/3 months to get the imageries and as such dynamic features could not be studied.

VIII. RECOMMENDATIONS:

Investigation using Landsat imageries in conjunction with aerial photographs and ground-truth observations is encouraging. The analysis has been done without the aid of sophisticated instruments. To derive full benefits from the ERTS programme, necessary equipment should be procured and local capabilities, developed. This is expected to be done under the proposed UNDP assistance.

NASA should ensure the continuity of Landsat Satellites. A Landsat data receiving facility should be established in the region so that dynamic features can be studied.

IX. CONSLUSIONS:

Landsat imageries of Bangladesh have been analysed by various sectors of Bangladesh Landsat Programme and Universities and the results have been promising. This shows the feasibility of using Landsat imageries for resource studies. To derive complete benefit from the programme, necessary equipment should be procured and training, imparted.

NOTE:

With reference to letter (File 741 code 902) dated July 17, 1975 of Dr. J.C. Broderick, Landsat Technical Monitor, we would like to mention the following points:-

- (1) The papers were presented in the Remote Sensing Seminar held in January 1975 and the Proceedings is in the final stage of printing. We shall send the copies of the proceedings as soon as it is published.
- (2) Copies of the maps will be sent with the proceedings.

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